previous states to form updated sums of such error coefficients far each of a new plurality of state sequences for all possible states;

b) if the bit is a predetermined bit, for every state, selecting both a most probable state sequence ending in that state from the new plurality of state sequences and a corresponding updated sum of error coefficients according to said predetermined bit, thereby discounting, at the bit location in the encoded signal corresponding to the predetermined bit location in the original signal, any state inconsistent with the predetermined bit at the predetermined bit location;

c) if the bit is not a predetermined bit, far every state, comparing said updated sums of error coefficients and selecting an updated sum of error coefficients representing a lesser total of said differences between the received encoded symbols and the expected symbols and selecting a corresponding most probable state sequence ending in that state from the new plurality of state sequences;

d) determining a best current state for the bit in the original signal by either comparing the updated sums of error coefficients of the most probable state sequences for every state or choosing a state arbitrarily; and

e) thereby determining, by tracing back from the best current state, a most probable earliest transition and earliest state that occurred a predetermined plurality of symbols previously, and thereby finding and outputting a bit most probably equal to the bit in the original signal.

2. (Original) A method as claimed in claim 1, wherein the at least one predetermined bit at a predetermined bit location is a synchronisation bit.

3. (Original) A decoder for decoding a signal encoded with a convolutional encoder from an original signal having at least one predetermined bit at a predetermined bit location in the original signal, comprising:

receiving means for receiving encoded symbols of the encoded signal;

summing means for adding for each received encoded symbol representative of a bit in the original signal, and for each possible current state of the convolutional encoder, error coefficients representative of differences between the received encoded symbol, representative of a transition from a previous state to a current state, and expected symbols corresponding to predetermined alternative permitted transitions from previous states to the current state, to a sum of such error coefficients for the previous states to form updated sums of such error coefficients for each of a new plurality of state sequences for all possible states;

comparing and selecting means for selecting for every state:

if the bit is a predetermined bit, both a most probable state sequence ending in that state from the new plurality of state sequences and a corresponding updated sum of error coefficients according to the predetermined bit, thereby discounting, at the bit location in the encoded signal corresponding to the predetermined bit location in the original signal, any state inconsistent with the predetermined bit at the predetermined bit location; and, if the bit is not a predetermined bit, for every state, comparing said updated sums of error coefficients and selecting an updated sum of error coefficients representing a lesser total of said differences between the received encoded symbols and the expected symbols and selecting a corresponding most probable state sequence ending in that state from the new plurality of state sequences;

processing means for determining a best current state for the bit in the original signal by either comparing the updated sums of error coefficients of the most probable state sequences for

every state or choosing a state arbitrarily; and thereby determining, by tracing back from the best current state, a most probable earliest transition and earliest state that occurred a predetermined plurality of symbols previously, and thereby finding a bit most probably equal to the bit in the original signal; and

transmitting means for outputting said bit most probably equal to the bit in the original signal.

4. (Original) A decoder as claimed in claim 3, arranged for generating a Viterbi state trellis corresponding to the convolutional encoder and for determining error coefficients of transition paths of the encoded signal through the Viterbi state trellis.

5. (Currently Amended) A decoder as claimed in claim[s] 3 [or 4], comprising synchronisation recognition means for recognising a synchronisation bit in the encoded signal for the comparing and selecting means to use the synchronisation bit as the at least one predetermined bit at a predetermined bit location.

Respectfully Submitted,

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